

REMARKS

CLAIM REJECTIONS – 35 USC 103

Claims 24-31 and 40-43 are rejected under 35 USC 103(a) as being unpatentable over Bae (KR 2001-511244) in view of Gilman (US 6086735) and Kulkarni (US 6283357). The Applicant respectfully disagrees.

Claims 32-37, 39 and 44-49 are rejected under 35 USC 103(a) as being unpatentable over Bae (KR 2001-511244) in view of Gilman (US 6086735) and Kulkarni (US 6283357), as applied to claims 24-31 and 40-43 above, and further in view of Kardokus et al (US 6113761). The Applicant respectfully disagrees.

Claims 32-36 and 38 are rejected under 35 USC 103(a) as being unpatentable over Bae (KR 2001-511244) in view of Gilman (US 6086735) and Kulkarni (US 6283357), as applied to claims 24-31 and 40-43 above, and further in view of Pavate et al (US 6391163). The Applicant respectfully disagrees.

Claims 50-57 and 61-63 are rejected under 35 USC 103(a) as being unpatentable over Bae (KR 2001-511244) in view of Gilman (US 6086735) and Kulkarni (US 6283357), as applied to claims 24-31 and 40-43 above, and further in view of Lai et al (US 6179973). The Applicant respectfully disagrees.

Claims 58, 60 and 64-66 are rejected under 35 USC 103(a) as being unpatentable over Bae (KR 2001-511244) in view of Gilman (US 6086735) and Kulkarni (US 6283357) and further in view of Lai et al. as applied to claims 24-31, 40-43, 50-57 and 61-63 above, and further in view of Kardokus et al (US 611761). The Applicant respectfully disagrees.

Claim 59 is rejected under 35 USC 103(a) as being unpatentable over Bae (KR 2001-511244) in view of Gilman (US 6086735) and Kulkarni (US 6283357), as applied to claims 24-31, 40-43, 50-57 and 61-63 above, and further in view of Pavate et al (US 611761). The Applicant respectfully disagrees.

Claims 78-80, 82, 84 and 85-88 are rejected under 35 USC 103(a) as being unpatentable over Kulkarni (US 6283357) in view of Kardokus et al (US 611761) as applied to claims 67-68, 70 and 72-76 above, and further in view of Lai et al. The Applicant respectfully disagrees.

Claims 78-79, 81 and 85-88 are rejected under 35 USC 103(a) as being unpatentable over Kulkarni (US 6283357) in view of Michaluk et al (WO 00/31310) as applied to claims 67, 69 and 73-76 above and further in view of Lai et al (US 6179973). The Applicant respectfully disagrees.

Claim 83 is rejected under 35 USC 103(a) as being unpatentable over Kulkarni (US 6283357) in view of Kardokus as applied to claims 67, 68, 70 and 71-76 above and further in view of Pavate and Lai. The Applicant respectfully disagrees.

These rejections are all moot, because the Applicants have herein canceled all pending claims except 67-76 in order to hopefully expedite this application. The canceled claims will be pursued in divisional applications and their cancellation should not be viewed as an attempt to bypass art cited by the Examiner.

Claims 67-68, 70 and 72-76 are rejected under 35 USC 103(a) as being unpatentable over Kulkarni (US 6283357) in view of Kardokus et al (US 611761). The Applicant respectfully disagrees.

Claim 67 recites:

"A three-dimensional physical vapor deposition target, comprising:

a material comprising one or more of Cu, Ni, Co, Ta, Al, and Ti;

an average grain size of less than or equal to 250 microns within the material;

a shape, the shape including at least one cup having a first end and a second end in opposing relation to the first end; the first end having an opening extending therein; the cup having a hollow therein; the hollow extending from the opening in the first end toward the second end; the cup having an interior surface defining a periphery of the hollow; and

a sputtering surface defined along the interior surface of the cup, wherein the target is monolithic and comprises a cast ingot."

Claim 67 is herein amended to recite that the targets are monolithic, which is different from the Kulkarni target. The Kulkarni reference discloses a clad hollow cathode magnetron sputter target that is made from a plate of sputter target material and a sheet of cladding material. Kulkarni specifically explains that the benefit of the Kulkarni disclosure is that it solves the problems inherent with monolithic targets, including cost and weight (see Abstract, among other sections). The present application, including the independent claims, covers targets that are produced from ingots and cast ingots that are ultimately formed into monolithic targets, which is exactly the opposite of Kulkarni. Therefore, it stands to reason that one would not read Kulkarni and consider this application, alone or in combination with Kardokus, to produce the claims of the current application.

Kardokus does not cure the obvious deficiencies of Kulkarni, specifically the issue of grain sizes, because Kardokus does not disclose a three-dimensional target, as is disclosed in the present application. The Examiner is invited to review the original specification – paragraph [0013], which discusses the inherent differences in Kardokus and the current application. Therefore, claim 67 is considered allowable, along with the related dependent claims, in view of Kulkarni and/or Kardokus.

Claims 67, 69 and 73-76 are rejected under 35 USC 103(a) as being unpatentable over Kulkarni (US 6283357) in view of Michaluk et al (WO 00/31310). The Applicant respectfully disagrees.

"A three-dimensional physical vapor deposition target, comprising:

a material comprising one or more of Cu, Ni, Co, Ta, Al, and Ti;

an average grain size of less than or equal to 250 microns within the material;

a shape, the shape including at least one cup having a first end and a second end in opposing relation to the first end; the first end having an opening extending therein; the cup having a hollow therein; the hollow extending from the opening in the first end toward the second end; the cup having an interior surface defining a periphery of the hollow; and

a sputtering surface defined along the interior surface of the cup, wherein the target is monolithic and comprises a cast ingot."

Claim 67 is herein amended to recite that the targets are monolithic, which is different from the Kulkarni target. The Kulkarni reference discloses a clad hollow cathode magnetron sputter target that is made from a plate of sputter target material and a sheet of cladding material. Kulkarni specifically explains that the benefit of the Kulkarni disclosure is that it solves the problems inherent with monolithic targets, including cost and weight (see Abstract, among other sections). The present application, including the independent claims, covers targets that are produced from ingots and cast ingots that are ultimately formed into monolithic targets, which is exactly the opposite of Kulkarni. Therefore, it stands to reason that one would not read Kulkarni and consider this application, alone or in combination with Kardokus, to produce the claims of the current application.

Michaluk does not cure the obvious deficiencies of Kulkarni, alone or in combination with one another. Therefore, claim 67 is considered allowable, along with the related dependent claims, in view of Kulkarni and/or Michaluk.

Claim 71 is rejected under 35 USC 103(a) as being unpatentable over Kulkarni (US 6283357) in view of Kardokus as applied to claims 67, 68, 70 and 72-76 above and further in view of Pavate. The Applicant respectfully disagrees.

Claim 67 recites:

"A three-dimensional physical vapor deposition target, comprising:

a material comprising one or more of Cu, Ni, Co, Ta, Al, and Ti;

an average grain size of less than or equal to 250 microns within the material;

a shape, the shape including at least one cup having a first end and a second end in opposing relation to the first end; the first end having an opening extending therein; the cup having a hollow therein; the hollow extending from the opening in the first end toward the second end; the cup having an interior surface defining a periphery of the hollow; and

a sputtering surface defined along the interior surface of the cup, wherein the target is monolithic and comprises a cast ingot."

Claim 67 is herein amended to recite that the targets are monolithic, which is different from the Kulkarni target. The Kulkarni reference discloses a clad hollow cathode magnetron sputter target that is made from a plate of sputter target material and a sheet of cladding material. Kulkarni specifically explains that the benefit of the Kulkarni disclosure is that it solves the problems inherent with monolithic targets, including cost and weight (see Abstract, among other sections). The present application, including the independent claims, covers targets that are produced from ingots and cast ingots that are ultimately formed into monolithic targets, which is exactly the opposite of Kulkarni. Therefore, it stands to reason that one would not read Kulkarni and consider this application, alone or in combination with Kardokus, to produce the claims of the current application.

Kardokus does not cure the obvious deficiencies of Kulkarni, specifically the issue of grain sizes, because Kardokus does not disclose a three-dimensional target, as is disclosed in the present application. The Examiner is invited to review the original specification – paragraph [0013], which discusses the inherent differences in Kardokus and the current application. Therefore, claim 67 is considered allowable, along with the related dependent claims, in view of Kulkarni and/or Kardokus.

Pavate and/or Kardokus does not cure the obvious deficiencies of Kulkarni, alone or in combination with one another. Therefore, claim 67 is considered allowable, along with the related dependent claims, in view of Kulkarni, Pavate and/or Kardokus.

REQUEST FOR ALLOWANCE


Claims 67-76 are pending in this application, and the Applicant respectfully requests that the Examiner reconsider all of the claims in light of the arguments presented and allow all current and pending claims.

Respectfully submitted,

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